

REMARKS

Claims 1 and 4-8 are now in the application. The indication that claims 4-8 are allowable is hereby noted with appreciation. Claims 2, 3 and 9 have been cancelled without prejudice or disclaimer. Claim has been amended to recite "wherein the silica treated, on its surface, with the silane coupling agent X has a bulk density retention rate of 50 to 150% and wherein the amount of surface treatment of the silica with the silane coupling agent X satisfies the relationship:

$1 \leq (\text{the weight of silane coupling agent X} / \text{the weight of silica before treatment}) \times 100 \leq 25$ ". Basis for the amendments to claim 1 can be found at least in original claims 2 and 3. In view of the amendments to claim 1, claims 2, 3 and 9 have been cancelled without prejudice or disclaimer. Claims 4 and 7 have been amended to depend from claim 1. The amendments to the claims do not introduce any new matter.

Concerning the Information Disclosure Statements filed on May 18, 2006 and September 29, 2006 enclosed are full copies of the following:

JP 2002-003652

JP 09-326631

JP 05-017705

JP 59-206469

EP 0177674A.

Also, enclosed are further copies of the PTO/SB/08a/b forms again listing these references. It is hereby requested that the Information Disclosure Statements filed on May 18, 2006 and September 29, 2006 be acknowledged and considered in their entirety. Pursuant to 37 CFR 1.97 (f), it is believed that no fee is due. However, if any fee is due, as authorized below, please charge it to Deposit Account 22-0185.

The objections to claims 4-8 and 3 have been addressed by the amendments to claims 4 and 7.

Claims 1, 2, 3 and 9 were rejected under 35 USC 102(b) as being anticipated by US Patent application publication 2002/0055568 to Cruse et al. (hereinafter also referred to as "Cruse"). Cruse does not anticipate claim 1 as amended.

As is clear from the disclosure of the present application, an important aspect of the present invention resides in the surface-treated silica, which was treated with a silane-coupling agent X having the formula (I), which has a bulk density retention rate of 50 to 150%, and satisfies the specified relationship of:

$$1 \leq (\text{the weight of silane coupling agent X} / \text{the weight of silica before treatment}) \times 100 \leq 25.$$

Cruse does not disclose this aspect of the present invention.

Contrary to above, although, as commented in the Office Action, Cruse suggests the use of a silane-coupling agent included in the silane-coupling agent X according to the present invention, together with silica. However, the use of the pre-treated silica, as a silane-coupling agent, with a diene-based rubber in the rubber composition according to the present invention (see, for example, claims 4-8 of the present application) and the excellent processability, silica dispersibility, abrasion resistance and wet heating performance obtained therefrom are completely absent in Cruse.

More specifically, as shown in the results of Table I (i.e., Comparative Example 2 and Example 3), Table III (i.e., Comparative Example 7 and Example 10) and Table V (i.e., Comparative Example 12 and Example 17), when the pre-treated silica (i.e., Examples 3, 7 and 10) was compounded with the diene rubber, the results superior to those of Comparative Examples 2, 7 and 12, respectively (i.e., the same silane-coupling agent and the silica were compounded, without the pre-treating the silica, in the rubber composition can be obtained. The results can be summarized as follows:

	Comp. Ex. 2	Ex. 3	Comp. Ex. 7	Ex. 10	Comp. Ex. 12	Ex. 17
<u>Formulation (parts by weight)</u>						
SBR	80	80	80	80	60	60
BR	20	20	-	-	40	40
NR	-	-	20	20	-	-
Silica	70	-	70	-	20	-
NXT	7.7	-	7.7	-	2.2	-
NXT treated silica (11%) (96 - 98%)	-	77.7	-	77.7	-	22.2
CB	10	10	10	10	40	40
6C	2	2	2	2	2	2
RD	2	2	2	2	3	3
Zinc White	2	2	2	2	-	-
Stearic acid	1	1	1	1	1	1
Oil	10	10	10	10	30	30
CZ	2.2	2.2	2.2	2.2	1.5	1.5
DPG	0.2	0.2	0.2	0.2	-	-
Sulfur	1.6	1.6	1.6	1.6	2.0	2.0
<u>Evaluation of physical properties</u>						
Mooney viscosity (130°C)	110	65	110	65	110 ^{*1}	65 ^{*1}
Mooney viscosity (160°C)	105	74	105	74	105 ^{*2}	74 ^{*2}
Mooney viscosity (180°C)	90	75	90	75	-	-
Payne effect (160°C)	81	51	81	60	-	-
Abrasion resistance (160°C)	100	140	100	130	97	127
M300/M100 (160°C)	94	103	75	67	-	-
Wet skid performance (160°C)	98	115	98	115	-	-
Friction force on ice (-1.5°C)	-	-	-	-	98	115
Friction force on ice (-5°C)	-	-	-	-	101	135

*1: at 120°C,

*2: at 135°C

As is clear from the results, the pre-treatment of, the silica with the silane-coupling agent (NXT) is essential for the present application. Although Cruse suggests the premixing or prereacting of silica and the blocked mercaptosilane in col. [0081], all the Examples added the silica and the blocked mercaptosilane separately to a rubber. Thus, the above-mentioned unexpected results obtained from the use of the pre-treated silica are by no means obvious from Cruse.

Claims 1, 2, 3 and 9 were provisionally rejected on the grounds of non-statutory obvious-type double patenting over US Patent application 11/573,619. Claim 1 as amended is not obvious over claims of US Patent application 11/573,619 for the reasons discussed herein above, which are incorporated herein by reference.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21713-00058-US1 from which the undersigned is authorized to draw.

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BAA/prb

Respectfully submitted,

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